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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/710,482	07/14/2004	Silviu REINHORN	6629C01\USA\PDC\ORBOT\OR	4481

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EXAMINER
STEVENSON, ANDRE C

ART UNIT	PAPER NUMBER
2812	

DATE MAILED: 06/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/710,482	REINHORN, SILVIU	
	Examiner	Art Unit	
	Andre' C. Stevenson	2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *April 06,2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *14 and 15* is/are allowed.

6)☒ Claim(s) *1-4 and 6-13* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 July 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

LYNNE A. GURLEY
PRIMARY PATENT EXAMINER
TC 2800, AU 2812

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Applicant's arguments filed April 06, 2005 have been fully considered but they are not persuasive.

Applicant argues, with respect to claim #1 and 2, that the reflected light does not interact with any inspected object.

The Examiner takes the position that Ando does indeed have a plurality of beams that reflect off an objective **(R_m)**, as can be seen from the text of the rejection, listed below.

Applicant argues, with respect to claim #11, that Ando's arrangement lacks a confocal arrangement.

The Examiner takes the position that Ando's arrangement indeed has a confocal arrangement, as can be seen from the text and drawing, fig. #2, axes from center of 129 thorough 126 and 124, (dotted line), explaining the apparatus.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

((b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

((e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 6, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Ando (U.S. Pat. No.5,349,592, Patented 09/20/94, Filed 02/25/03).

Ando shows, in figures 1-53 and corresponding text, with respect to **claim #1**, a method for optical inspection, comprising; generating an annular light beam **(fig. 2, item 10** which produces the annular beam from laser element beam #112**; (column 6, lines 3-45; column 7, lines 33-43)**; scanning the annular beam along a line in a given scanning direction to provide a scanned single beam **(item 118 and 120)** scans the beam into a single beam focused on the R_m**; column 6, lines 57-60; column 7, lines 33-67)**; and splitting the scanned single beam to provide multiple beams of substantially identical intensity from the scanned single beam **(light reflected from R_m, column 8, lines 1-13)**; and detecting signals **(detector items 128 and 130)** generated from an interaction between the plurality of multiple beams and an inspected object **(R_m is the inspected object; column 8, lines 4-13)**. ***Pertaining to Claim #2***, Ando shows an optical inspection method, comprising of outputting an annular beam from a light source **(fig. 2, item 10, produces annular beam from light source 112; column 6, lines 3-45; column 7, lines 33-43)**; focusing the annular beam at a target **(column 7, lines 52-55, target R_m)**; and detecting light scattered from the target **(detector 128 and 130, column 8, lines 4-13)**. ***Pertaining to claim #3***, Ando also shows, an optical inspection method further comprising; outputting a circular beam from the light source **(fig. 2, item 10; column 6, lines 3-45; column 7, lines 55-64** note that the annular beam is also circular beam**)**; focusing the circular beam at the target **(column 7, lines 52-55)**; and detecting light reflected from the target **(column 8, lines 4-13)**. ***Pertaining to claim #4***, Ando shows, an optical inspection method further comprising: selecting an imaging operation type; producing a selected one of the annular beam and the circular beam based on the

imaging operation type (both annular and circular portions are used for inspection, **(column 7, lines 65-67; column 8, lines 1-13).** ***Pertaining to claim #6,*** Ando shows, an optical inspection method, further comprising: scanning the annular beam along a line in a given scanning direction to provide and a scanned single annular beam; producing multiple annular beams of substantially identical intensity from the scanned single annular beam **(column 16, lines 7-22; column 6, lines 57-60; column 7, lines 33-67**). ***Pertaining to claim #11,*** Ando shows, an optical inspection method, comprising; outputting a beam **(item #112)**; focusing the beam at a target (R_m), and directing captured light to a detector through a confocal optical arrangement (item 124, 126 and 128)**(column 18, lines 50-55 and lines 63-57; column 19, lines 1, 2)**. ***Pertaining to claim #12,*** Ando also shows, an optical inspection method further comprising controlling the focus of the optics **(column 26, lines 1-14)** based on: a light level threshold, and a light level signal indicative of light received by the detector through the confocal optical arrangement **(column 18, lines 50-55 and lines 63-57; column 19, lines 1, 2)**.

Claims #7, 9, 10 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Hill (U.S. Pat. No.6,271,923, Patented 08/07/01, Filed 07/27/99).

Hill shows, in figures 1-53 and corresponding text, with respect to **claim #7**, an optical inspection method, comprising: outputting a single beam; scanning the single beam along a line in a given scanning direction to provide a scanned single beam **(column 3, lines 10-14)**; and producing multiple beams of substantially identical intensity from the scanned single beam **(column 3, lines 14-32)**. ***Pertaining to claim #9,*** Hill shows, an optical inspection method, comprising outputting a beam **(column 3, lines 10-14)** and scanning the beam in a beam Spot

across a target the target being movable in a target movement direction; wherein the beam has a scanning direction not perpendicular to the target movement direction **(fig. 1; column 6, lines 32-44; column 3, lines 14-32)**. ***Pertaining to claim #10,*** Hill shows, an optical inspection method, wherein the beam spot travels a distance in the mechanical scanning direction that is greater than the distance in between scan lines in the mechanical scanning direction **(fig. 6a items 533, 534** and **a; fig. 5a items 433, 434** and **a; column 25, lines 28-49; column 26, lines 30-53)**. The Examiner notes that although no specific measurement of the mechanical distance between the two beams, nor the mechanical distance that they travel, is explicitly mentioned, the observation of the drawings, listed above, along with corresponding text, shows that the mechanical distance that the two beams travel, is greater that than the mechanical distance between them. ***Pertaining to claim #13,*** Hill shows, an optical inspection method, comprising; providing a beam of light **(column 16, lines 13-19)**; providing scanned multiple beams from the beam of light **(fig. 2, item 120, 142, 143 and 166; column 3, lines 9-17)**; illuminating a target, with the scanned multiple beams, through an objective lens **(column 3, lines 17-23)**; collecting light, returned back from the illuminated target, with the objective lens; passing the collected light through to an imaging lens **(column 3, lines 23-32)**; focusing the light of the imaging lens to a bright field channel detector **(fig. 2, items 128 and 182; column 3, lines 43-53; column 17, lines 3-36)**. The Examiner notes that even through bright field channel detector is not explicitly disclosed, the detector detects a circular beam, which would make it a bright field detector.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim #8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hill (U.S. Pat. No.6,271,923, Patented 08/07/01, Filed 07/27/99) as applied to claim #7 above, and in view of Tanitsu et al. (U.S. Pat. No.6,741,394 B1, Patented 05/25/04, Filed 11/02/00).

Hill shows the method substantially as claimed and as described in the previous rejection of claim #7 under 35 USC 102(e).

Hill fails to show, **pertaining to claim #8** wherein producing of the multiple beams is performed with a diffractive optical element having uniform diffraction efficiency.

Tanitsu teaches, in a similar method, wherein a diffractive element, with uniform diffraction efficiency is used, ***with respect to claim #8,*** in an optical inspection method, wherein the production of multiple beams is performed with a diffractive optical element having uniform diffraction efficiency **(column 5, lines 42-47).**

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to use a diffractive element with uniform diffraction efficiency to produce multiple beams, in the method of Hill, as taught by Tanitsu, with the motivation given by Tanitsu, in column 5, lines 42-47, that the resulting method allows for controlling the form of the secondary light source (i.e. precluding the quantity and quality of the diffracted light from

diminishing as the zeroth-order of light is maintained), so that the beam will maintain a concentrated focus.

Allowable Subject Matter

Claim #5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim #5 allowable subject matter subject to further search.

- When the imaging operation type is bright field imaging, the light source is controlled to produce the circular beam.

The following is an examiner's statement of reasons for allowance: The prior art shows an optical system first and second beam splitters and the illumination of a target through a objective lens system. It fails to teach deflecting the returned light signal, with the first beam splitter, through a focusing lens and a pinhole, and receiving the light through the pinhole using one or more detectors.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Claims 14 and 15 are allowed subject to an updated search.

Claim #14 and 15 allowable subject matter:

- ✓ Deflecting the returned light signal, with the first beam splitter, through a focusing lens and a pinhole, and receiving the light through the pinhole using one or more detectors.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure; Bultman et al. (U.S. Pat. No. 6,829,559), Reddersen et al. (U.S. Pat. No. 5,438,187), Hayano (U.S. Pat. No. 5,719,405), Conemac (U.S. Pat. No. 6,226,126).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre' Stevenson whose telephone number is (571) 272 1683. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt, can be reached on (571) 272 1873. The fax phone number for the organization where this application or proceeding is assigned is (703) 308 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956. Also, the proceeding numbers can be used to fax information through the Right Fax system;

(703) 872-9306

Andre' Stevenson

02/11/05

LYNNE A. GURLEY
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